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(54) Title: PARTICLE BEAM CURABLE INK JET INKS

$$c\% + 0.628 \left(\frac{d\%}{\sin 60} + \frac{e\%}{\tan 60} \right) \quad (I)$$

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(57) Abstract: A non-aqueous, substantially solvent-free and photoinitiator-free, particle beam curable ink having a viscosity less than 30m Pa.s at 60 °C, comprising: (j) a colorant; and (ii) a mixture of (meth)acrylate compounds; wherein: (a) the colorant is present in the ink in an amount of 0.1 to 14.9 % by weight relative to the total weight of ink; and (b) the mixture of (meth)acrylate compounds comprises c % of one or more mono (meth)acrylate compounds, d % of one or more di (meth)acrylate compounds and e % of one or more compounds having three or more (meth)acrylate groups, wherein the values of c %, d % and e % are by weight relative to the total weight of the mono (meth)acrylate compounds, di (meth)acrylate compounds and compounds having three or more (meth)acrylate groups and are such that the value of: Formula (I) is less than or equal to 60: Formula (I). Said inks are especially useful as ink jet printing inks. The inks are especially suitable for food contact applications and when printed and cured demonstrate good fat resistance and low levels of leaching to foodstuffs.